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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,507	09/29/2005	Ivo Paul Touw	3691-050510	6240

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Barbara E. Johnson, Esq.
555 Grant Street, Suite 323
Pittsburg, PA 15219

EXAMINER	
POPA, ILEANA	
ART UNIT	PAPER NUMBER
1633	
MAIL DATE	DELIVERY MODE
08/19/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/524,507	TOUW ET AL.	
	Examiner	Art Unit	
	ILEANA POPA	1633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *52-75* is/are pending in the application.

4a) Of the above claim(s) *52-72* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *73-75* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/23/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of the invention of Group VI, drawn to a method of identifying genomic regions involved in the development of cancer, in the reply filed on 05/01/2008 is acknowledged.

In the same response, Applicant elected with traverse the species of. The traversal is on the ground(s) that the method of claims 73-75 is directed to the identification of genomic regions involved in the development of cancer, so requiring election of species of genomic regions thus identified reverses the logic of the invention. If the method steps of claims 73 and 74 are searched as method steps, the search will embrace any genomic region that might be identified by such a method. This is not found persuasive because, while claims 73 and 74 embrace any genomic region that might be identified by such a method, the dependent claim 75 recites specific genomic regions (i.e., it does not embrace just any genomic region), each specific region requiring a separate search in the patent and non-patent literature. Therefore, searching for all the species recited in claim 75 would be a burden for the Examiner. The species election requirement is therefore deemed proper and made final.

Claims 1-51 have been cancelled.

Claims 52-72 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim.

Claims 73-75 are under examination.

Specification

2. The use of the trademark Superscript has been noted in this application (p. 64, line 17). It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

3. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (p. 23, line 4, p. 70, line 23). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claim 75 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Specifically, the recitation of "obtainable" does not necessarily mean that the claimed genomic regions are isolated from the animals; "obtainable" means that the genomic regions could be isolated from the animals if

needed. As such, the claim reads on genomic regions within animals; animals are products of nature and products of nature are non-statutory subject matter.

Claim Rejections - 35 USC § 112, second paragraph

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 73-75 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, claim 73 recites that the genomic regions are selected from a group comprising 40 genomic regions, more preferably from a group comprising only 5 out of the 40 genomic regions. A preferred embodiment may be set forth in another dependent claim; when stated in a single claim, preferences lead to confusion over the intended scope of the claim. Since it is not clear whether the claimed preferred embodiment (i.e., the group consisting of only 5 genomic regions) is a claim limitation, the metes and bounds of the claims cannot be determined and the claim is indefinite.

Claim 73 and 74 have been included in the instant rejection because claim directly or indirectly depends from them, and therefore, claims 73 and 74 encompass the embodiment under rejection.

8. Claims 74 and 75 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, claim 74 recites a method of identifying common viral integration sites by: performing the method of claim 73 (step (a)), designing genomic region-specific primers, isolating nucleic acids form tumors, and amplifying the isolated nucleic acids by using a set of nested primers comprising the genomic region-specific primers and retrovirus-specific primers (steps (b)-(e)), and blotting the amplification product (step (e)). It is noted that step (a) of claim 74 already recites isolating the nucleic acid and amplifying the isolated nucleic acid with retrovirus-specific primers (see claim 73). Therefore, claim 74 practically recites two distinct methods: the first as disclosed in steps (a) and (e), wherein the method uses retroviral-specific primers; the second, as disclosed in steps (b)-(e), wherein the method uses both retroviral-specific and genomic region-specific primers. Since it is not clear what method is claimed, the metes and bounds of the claim cannot be determined and the claim is indefinite.

Claim 75 is rejected for being dependent from the rejected claim 74 and also for failing to further clarify the basis of the rejection.

For examination purposes, the claim is interpreted as being drawn performing the method recited in claim 73, i.e., using retroviral-specific primers.

Claim Rejections - 35 USC § 112, first paragraph – written description

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claim 75 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Adequate written description requires more than a mere statement that it is part of the invention. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC1993). The Guidelines for the Examination of Patent Application Under the 35 U.S.C.112, ¶1"Written Description Requirement" makes it clear that the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species disclosures of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001, see especially page 1106 3rd column).

Claim 75 encompasses a wide genus of Cish2 and Prdx2 genomic regions. Therefore, claim 75 encompasses a wide and variable genus of genomic regions the structure of which is not sufficiently disclosed in the specification and the claims.

To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail such that the Artisan can reasonably

conclude the inventors had possession of the claimed invention. Such possession may be demonstrated by describing the claimed invention with all its limitations using such descriptive means as words, structures, figures, diagrams, and/or formulae that fully set forth the claimed invention. Possession may be shown by an actual reduction to practice, showing that the invention was "ready for patenting", or by describing distinguishing identifying characteristics sufficient to show that the Applicants were in possession of the claimed invention (January 5, 2001, Fed. Reg., Vol. 66, No. 4, pp.1099-11). In analyzing whether the written description requirement is met for the genus claims, it is determined whether representative numbers of species have been described by their complete structure and functional characteristics.

Specifically, at issue is the breadth to any Cish2 and Prdx2 genomic region, in particular since no function or structure is defined in the claim that would define the genomic region. The specification does not provide any disclosure as to what would have been the complete structure of sufficient number of species of the claimed genus. The specification only discloses using insertional mutagenesis to identify common virus integration sites, wherein one specific integration site in or near each Cish2 and Prdx2 genes was found (it is not clear from the specification if the discovered integration site are in or near the gene). However, as noted above, Applicant claims Cish2 and Prdx2 genomic regions. As such, the term "Cish2 and Prdx2 genomic regions" generically refers to any genomic region (including enhancers, promoters, introns, exons, 5' and 3' UTRs) derived from the Cish2 and Prdx2 genes or their allelic variants, and therefore, it just a name which does not define the specific linear genomic region claimed. The

specification does not describe what would have been the identifying characteristics, such as specific features and functional attributes, of the different genomic regions. Thus, it is apparent that at the filing date of the present application, Applicant did not have in possession a representative number of species for a broad genus of Cish2 and Prdx2 genomic regions. The claimed invention as a whole is not adequately described if the claims require essential or critical elements that are not adequately described in the specification. One of skill in the art cannot fully envision the detailed structure of a broad genus of Cish2 and Prdx2 genomic regions, as claimed. In conclusion, this limited information is not sufficient to reasonably convey to one of skill in the art that the Applicant invented what was claimed. Consequently, the Applicants were not in possession of the instant claimed invention, at the time the application was filed.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 73 and 75 is rejected under 35 U.S.C. 102(b) as being anticipated by Li et al. (Nature Genetics, 1999, 23: 348-353), as evidenced by Bedigian et al. (J Virol, 1984, 51: 586-594).

With respect to claim 73, Li et al. teach a method of identifying genomic regions involved in cancer development, the method comprising: **(a)** aging BXH-2 (it is noted

that the BXH-2 mice spontaneously produce MuLV beginning early in gestation and develop tumors by 7 months of age, see Bedigian et al., Abstract, p. 586, column 1; i.e., Li et al. perform insertional mutagenesis by using a mouse infected with a tumor-inducing retrovirus), **(b)** isolating chromosomal DNA from tumors developed by the infected BXH-2, **(c)** digesting the isolated DNA with an endonuclease capable of cutting once the MuLV DNA sequence and at least once the chromosomal DNA, **(d)** ligating the cut DNA to form circles, **(e)** amplifying the circles by first using primers specific for the MuLV DNA and amplifying the product thus obtained in a secondary amplification using a nested set of primers specific for the MuLV DNA, and **(f)** determining the nucleotide sequence of the amplified chromosomal DNA fragment and comparing it with known sequences in the EST database to identify coding regions (Abstract, p. 348, columns 1 and 2, Fig. 1, p. 352, column 2, p. 353, columns 1 and 2).

With respect to claim 75, Li et al. teach isolating DNA from murine leukemia cells and digesting the isolated DNA with restriction endonucleases, i.e., they teach a set of genomic DNA regions comprising genomic regions derived from the Cish2 and Prdx2 genes (p. 348, column 1, first paragraph, p. 353, column 1). It is noted that the term "genomic regions obtainable by a method according to claim 74" recited in the claim does not limit the claim to genomic regions obtained by the method recited in claim 74. "Obtainable" only means that the genomic regions could be within the animal (see above) or that the genomic regions could be obtain by any method, including the method recited in claim 74 and the one of Li et al.

Since Li et al. teach all claim limitations, the claimed invention is anticipated by the above-cited art.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 73-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. taken with Bedigian et al., in view of each Silver et al. (J Virol, 1989, 63: 1924-1928).

The teachings of Li et al. and Bedigian et al. are applied as above for claims 73 and 75. Li et al. and Bedigian et al. do not teach further blotting their amplified DNA (claim 74). Silver et al. teach identifying common viral integration sites by isolating and amplifying genomic DNA, wherein the identity of the amplified genomic DNA is further confirmed by Southern blotting using a retroviral-specific and a genomic region-specific probe (p. 1924, columns 1 and 2, p. 1926, columns 1 and 2, Fig. 2). It would have been obvious to one of skill in the art, at the time the invention was made, to modify the method of Li et al. and Bedigian et al. by further including the Southern blotting of Silver et al., with a reasonable expectation of success. One of skill in the art would have been motivated to do so in order to confirm the identity of the amplified genomic region. One of skill in the art would have been expected to have a reasonable expectation of

success in doing so because Southern blotting was routine in the prior art. Thus, the claimed invention was *prima facie* obvious at the time the invention was made.

15. No claim is allowed. No claim is free of prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ILEANA POPA whose telephone number is (571)272-5546. The examiner can normally be reached on 9:00 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Woitach can be reached on 571-272-0739. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ileana Popa, PhD

/Ileana Popa/
Art Unit 1633